REMARKS/ARGUMENTS

The Office Action mailed October 4, 2006 has been carefully considered. Reconsideration in view of the following remarks is respectfully requested.

Claims 2, 22, and 28 have been amended. Support for the amendments is found in the specification, drawings, and claims as originally file. Applicant submits therefore that no new matter has been added.

The First 35 U.S.C. § 103 Rejection

Claims 2-5, 8-10, 12-14, 17-20, 22-24 and 26-28 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Chang et al.[1] in view of Thorner et al.[2]. This rejection is respectfully traversed.

Applicant respectfully submits that the claims, for example, claim 2, as amended, are not rendered obvious by the combination of Chang and Thorner. Claim 2 includes the following limitations.

A method, comprising:

storing a portion of sound data in a memory buffer of a computer;

dividing the portion of sound data into a plurality of frequency ranges each of the frequency ranges associated with a periodic haptic effect;

analyzing each frequency range to determine one or more sound features corresponding to at least one of the frequency ranges; and

executing at least one haptic effect based on one or more of the sound features.

(Amended claim 2) (Emphasis added)

[1] U.S. Patent No. 6,285,351
[2] U.S. Patent No. 6,422,941

Applicant respectfully submits that neither Chang nor Thorner disclose or suggest the limitation of dividing the portion of sound data into a plurality of frequency ranges each of which is associated with a periodic haptic effect, and analyzing each frequency range.

As noted by the Examiner, Chang does not disclose identifying at least one frequency component of a sound feature. This is because Chang is not concerned with associating sound features with specific haptic effects, but rather associating a sound with a haptic effect to effect a synchronization between the sound and the haptic effect. A thorough reading of Chang makes clear that Chang does not disclose the limitation of haptic effects based upon sound features.

Applicants maintain that for this reason the combination of Chang and Thorner, as suggested by the Examiner is inappropriate. Moreover, such combination would not result in the system suggested by the Examiner.

Moreover, such combination does not disclose or suggest the limitation of dividing the portion of sound data into a plurality of frequency ranges, each of which is associated with a periodic haptic effect, and analyzing each frequency range. Thorner discloses the following.

> The bass audio filter and peak hold buffer 430 uses a low pass filter that passes low frequencies, e.g., below 338 Hz. The treble audio filter and peak hold buffer 450 uses a high pass filter that passes high frequencies, e.g., above 1.6 KHz. In the preferred embodiment, the midrange audio filter and peak hold buffer 440 uses a difference amplifier that removes the combined signals of the bass and treble audio filters from the signal that exits the variable gain preamplifier 420. Namely, the midrange filter yields an audio signal that is essentially what remains after the bass and treble frequencies have been isolated, combined, and then subtracted from the main signal. This reduces the overlapping roll-off that occurs as the frequency responses of the high and low pass filters fade out and extend beyond their respective frequency cutoff properties. This ensures that the bass 430, midrange 440, and treble 450 filters will yield independent signals that do not suffer from too much frequency intersection.

> Alternatively, a bandpass filter could be used in place of the difference amplifier, in order to specifically pass a tunable band illustratively centered at 1.2 KHz. It should be understood that the present invention can be implemented using other filter designs.

(Thorner, column 11, lines 17 – 40)

Thorner uses a low pass filter and a high pass filter and then removes the low and high frequencies. This is done in order to filter the audio signals to create filtered audio signals that are more amenable to manipulation by the processor (microcontroller 320). Control signals are then generated from the filtered audio signal via sampling. These control signals are then converted into PWM signals and used to drive the tactile sensation generators.

This makes clear that Thorner cannot disclose the limitations of claim 2 in regard to each of the frequency ranges being associated with a periodic haptic effect. Further, applicants maintain that Thorner makes no disclosure of haptic effects that are based on sound features derived by dividing the portion of sound data into frequency ranges and then analyzing <u>each</u> frequency range to determine sound features. A thorough reading of Thorner makes clear that there is no analysis of each frequency range to determine sound features thereof.

Applicant further submits that Fineberg does not remedy the defects of the combination of Chang and Thorner in this regard.

Given that all of the pending claims contain the limitations as discussed above, applicant respectfully submits that claims 2, 4, 7, 10, and 22 – 28 are not rendered obvious by Chang, Thorner, or Fineberg (U.S. Patent No. 5,842,162), alone or in combination one with another.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

Conclusion

It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698.

Respectfully submitted,

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Dated: 2/5/07

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